

REMARKS

Claims 1-18 are pending in the above-identified application. Support for the insertion into claim 1 is found at the bottom of page 13 of the specification. The changes made to claims 2-5, 7 and 8 are formal in nature and are submitted in response to issues raised under 35 USC 112 discussed in more detail below. Support for new claims 16-18 is found in original claims 1,3, 5, and 9, as well as at the bottom of page 13 of the specification. It is submitted that all of the presently pending claims are fully supported by the original disclosure of the present application.

Request for Initialed IDS Form

It is requested that the Examiner provide a copy of the initialed PTO-1449 form corresponding to the Information Disclosure Statement filed April 23, 2004.

Issues under 35 USC 112

Claims 1-15 have been rejected under 35 USC 112, second paragraph, as allegedly being indefinite. Specifically, claim 2, 5, 7 and 8 have been objected to for the reasons indicated at Item (1) at page 2 of the Office Action dated October 5, 2005. Claims 2, 5, 7 and 8 have been amended taking into account the suggestions stated in the Office Action. It is submitted that all of these claims comply with all definiteness requirements under 35 USC 112, second paragraph, such that this rejection should be withdrawn.

Issues under 35 USC 102(b) and 103(a)

All of the claims of the present application have been rejected under 35 USC 102(b) and/or 103(a) as being unpatentable over one or more of the following references:

- (1) Feeney '598 (WO 98/56598);
- (2) Kresge '372 (USP 5,576,372) ;

- (3) Hopkins '948 (US 2001/0009948);
- (4) Ou '877 (EP 0 601 877);
- (5) Kaido '123 (USP 6,136,123);
- (6) Kotani '560 (USP 5,700,560); and
- (7) Kotani '093 (USP 3,316,093).

The rejections based on the above-noted references are traversed for the following reasons.

Present Invention

The present invention is directed to a tubeless tire including a tire body, an air chamber and a rim, wherein a gas barrier layer formed from a resin composition is disposed on an inner face of a tire body. The resin used to mask the gas barrier resin composition may be a resin selected from the various examples recited in claim 1, such as resin formed from polyvinyl alcohol or a polysaccharide. The gas barrier resin composition also includes an organic layered compound having a particle size of at most 5 μm and an aspect ratio of 50 to 5000, as recited in claim 1, for example. Other embodiments of the present invention require the presence of an inner liner layer formed from a rubber composition that may include the inorganic layered compound and an inorganic filler, as recited in claim 7, for example.

Distinctions between Present Invention and Cited References

Significant patentable distinctions exist between the present invention and the various cited references as provided below.

Distinctions over Feeney '598, Kresge '372 and Hopkins '948 References

Feeney '598 disclosed barrier coating mixtures used for the inner surface of tires which include: (a) an elastometric polymer, (b) a dispersed exfoliated layered filler having an aspect ratio greater than 25, and (c) at least one surfactant as noted at page 3, lines 13-16, for example. Examples of the elastometric polymer (a) are provided at pages 13-14.

Kresge '372 discloses a composition for tire inner liners, which includes a layered silicate compound. As noted at column 2, line 62 to the bottom of column 4, the inner liner composition preferably includes a complex rubber formed from a "reactive" rubber and the layered silicate compound, as well as a "solid" rubber. Examples of the reactive rubber are provided at column 3, line 42 to column 4 line 13. Examples of the solid rubber are provided at column 4, line 32-41.

Hopkins '948 discloses an elastometric butyl compound combined with a mineral filler to form a composition used to make tires. Halogenated butyl elastomers are preferably used in the described compositions.

All of the Feeney '598, Kresge '372 and Hopkins '948 references fail to disclose or suggest any of the various resins employed in the gas resin composition used in the tire of the present invention. All of these references further fail to disclose or suggest the use of the combination of a gas barrier layer and an inner liner layer formed on the inner face of a tire body as in the tire of the present invention. Consequently, significant patentable distinctions exist between the present invention and all of these references.

Distinctions over Kaido '123 Reference

Kaido '123 discloses a process to produce a tire which employs a thermoplastic film used as a air permeation preventive layer. Kaido '123 discloses beginning at the top of column 3 various examples of resin which may be used to form the described thermoplastic resin

compound, including polyvinyl alcohol (PVA) and vinyl alcohol/ethylene copolymer (EVOH) as noted at column 3, lines 25-26.

Kaido '123 fails to disclose or suggest anywhere the use of an inorganic layered compound having a particle size of at most 5 µm and aspect ration of 50 to 5000, as in the gas barrier resin composition of the present invention. Kaido '123 further fails to disclose or suggest the use of the combination of a gas barrier layer with an inorganic compound together with an inner liner layer formed on the inner face of a tire body as in the present invention. Consequently, significant patentable distinctions exist between the present invention and Kaido '123.

Absence of Basis to Combine Kaido '123 with Other References

There fails to be an adequate basis for motivation for one skilled in the art (i.e. the present technological area) to combine Kaido '123 with any of the Feeney '598, Kresge '327 or Hopkins '948 references. Kaido '123 fails to disclose or mention anything regarding any of the: (i) dispersed exfoliated layered filler and surfactant required in the composition of Feeney '598; (ii) layered silicate component required in the composition of Kresge '372; or (iii) mineral filler compound described at paragraphs [0019]-[0020] of Hopkins '948. None of the examples of Kaido '123 include any of these compounds which are all required for the other references. In addition, all of Feeney '598, Kresge '327 and Hopkins '948 fail to disclose or suggest the use of a tire inner liner which includes polyamide resins, PVA or EVOH, among other potential resins used in the thermoplastic film disclosed by Kaido '123. In fact, the only reasonable basis for combining Kaido '123 with these other references is based on the disclosure of the present application which is prohibited "hindsight reconstruction". Thus, Kaido '123 can not be combined with any of these other references.

Distinctions over Ou '877 over Kotani '560 and Kotani '093 References

Ou '877 discloses coated substrate and laminate structure, which includes organic solvent-based dispersions of organocation-modified vermiculite. Such coated substrates and laminate structures may be employed in applications including "fire resistant coatings, papers, fluid-seal gaskets, gas barriers, and electrical insulation," as noted at page 2, lines 5-8. Ou '877 mentions nothing regarding the application of the described compositions as gas barriers used in tires. Also, the preferred applications are fire-resistant coatings and "laminate structures" which appear to exclude tires.

Ou '877 fails to disclose or reasonably suggest a tire having an air chamber and a rim together with a gas barrier layer, as in the present invention. Ou '877 further fails to disclose or suggest the use of any of the resins employed in the gas barrier resin composition of the present invention. Ou '877 also fails to disclose or suggest a combination of a gas barrier layer with an inner liner layer disposed on the inner face of a tire body as in the present invention. Further still it appears that Ou '877 fails to be directed to applications including gas barriers employed on the inner face of a tire body as in the present invention. Therefore, many significant patentable distinctions exist between the present invention and Ou '877.

Both Kotani '560 and Kotani '093 relate to gas barrier resin compositions used for the preservation of foods. In this regard, note column 1, lines 21-29 and column 11, lines 17-28 of Kotani '560, as well as column 1, line 18-25 and column 19, line 21 to column 20, line 28 of Kotani '093. None of the applications mentioned in these portions of these references included a gas barrier layer disposed on an inner face of a tire body as in the present invention. In fact, Kotani '560 and Kotani '093 describe applications far removed from that of the tire of the present invention such that these references can not be combined with any of the other references discussed above that relate to tires and/or tire inner linear applications. Consequently, significant patentable distinctions exist between the present invention and Kotani '560 and Kotani '093 references whether taken alone or improperly combined with the other cited references.

Application No. 10/679,406
Amendment dated February 6, 2006
Reply to Office Action of October 5, 2005

Docket No.: 1403-0256P

It is submitted for the reasons stated above that all the presently pending claims define patentable subject matter such that the present application should be placed into condition for allowance. It is requested that all of the outstanding rejections be withdrawn.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of one (1) month to February 5, 2006 in which to file a reply to the Office Action. The required fee of \$ 120 is enclosed herewith.

Dated: February 6, 2006

Respectfully submitted,

By 
Andrew D. Meikle
Registration No.: 32,868
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant